CLAIMS

1. A particle size distribution analysis apparatus comprising a sample measurement zone adapted to define a sample of particles, a light emitting means adapted to provide a source of light incident upon the sample measurement zone, and at least a first detection means adapted to measure light levels in the apparatus at particular scattering angles and output a signal to a computation means enabling a particle size distribution of particles contained within said sample to be determined, wherein said computation means is adapted, in use, to calculate said particle size distribution taking into account reflections by said measurement zone of light scattered off said particles.

2. An apparatus according to claim 1 wherein there is provided a second detection means and said computation means is adapted, in use, to modify readings taken from said first detection means based upon readings taken from said second detection means to take in to account reflections.

3. An apparatus according to claim 2 wherein said computation means is adapted, in use, to modify readings taken from said second detection means based upon readings taken from said first detection means to take in to account reflections.

4. An apparatus according to claim 1 wherein said first detection means comprises a large angle detector which is situated substantially in the range 90° to 0° from the axis of a beam of light emitted from said light emitting means taking the direction of travel of the light as 0°.

5. An apparatus according to claim 4 wherein said large angle detector is situated substantially in the range of 70° to 40°.

6. An apparatus according to claim 4 wherein there is provided a plurality of said large angle detectors.

7. An apparatus according to claim 2 wherein said second detection means comprises a back scatter detector which is situated substantially at an obtuse angle from the axis of a beam of light emitted from said light emitting means taking the direction of travel of the light as 0°.

8. An apparatus according to claim 7 wherein said obtuse angle is substantially in the range 90° to 180°.

9. An apparatus according to claim 7 wherein said obtuse angle is substantially in the range 110° to 170°.

10. An apparatus according to claim 7 wherein there are provided a plurality of said back scatter detectors.

11. An apparatus according to claim 2 wherein said angle at which the second detection means is inclined relative to a beam of light emitted from said light emitting means is equal to 180° minus the angle at which said first detection means is inclined relative to the beam of light.

12. An apparatus according to claim 2 wherein there are a plurality of first detection means and the same number of second detection means wherein said first and said second detection means are inclined symmetrically relative to the to said measurement zone.

13. An apparatus according claim 2 wherein said first and said second detectors are of substantially the same construction.

14. A method of improving the accuracy of a particle size distribution calculation performed by illuminating a sample with light from a light emitting means and taking readings of the amount of light scattered by the sample comprising providing at least a first detection means and calculating a particle size distribution taking into account reflections by the measurement zone of light scattered from the particles.

15. A method according to claim 14 which comprises providing a second detection means and modifying readings taken from said first detection means by readings taken from said second detection means.

16. A method according to claim 15 in which a reading taken from said second detection means is modified by readings taken by said first detection means.

17. A method according to claim 15 which comprises compensating a reading from a detection means detecting light scattered having a directional component towards said light emitting means with a reading from a detection means detecting scattered light having no directional component toward said light emitting means.

18. A method according to claim 15 which comprises compensating a reading from a detection means detecting light having no directional component towards said light emitting means with a reading from a detection means detecting scattered light having a directional component toward said light emitting means.

19. A method according to claim 15 which comprises providing said first and second detection means at substantially mirror symmetric angles relative to a beam of light emitted by said light emitting means.

20. A method according to claim 15 which comprises providing a plurality of detectors for said first detection means.

21. A method according to claim 15 which comprises providing a plurality of detectors for said second detection means.